REMARKS

Claims 1, 13, 37, 45, and 58 are amended. Claims 1-67 remain in the application for consideration. In view of the following remarks amendments and/or remarks, Applicant respectfully requests that the application be forwarded onto issuance.

Specification

The Office has objected to the "Abstract" section as containing too many words. Applicant has amended the Specification to include a new "Abstract" that has less than 150 words, thus overcoming the Office's objection.

The Claim Rejections

Claims 1-10, 12-20, 22-36, 45-62, and 64-67 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,091,956 to Hollenberg.

Claims 11, 21, 37-44, and 63 stand rejected under 35 U.S.C. §103(a) as beiung obvious over Hollenberg in view of U.S. Patent No. 6,088,717 to Reed et al. (hereinafter "Reed").

Before undertaking a discussion of the substance of the Office's rejections, the following discussion of Hollenberg is provided in an attempt to help the Office appreciate various distinctions between the claimed embodiments and Hollenberg.

The Hollenberg Reference

Generally, Hollenberg's disclosure is directed to a so-called "Situation Information System" which relates to information communications between sources of information and one or more information users which also provide

information to other users. In accordance with Hollenberg's various described embodiments, a communication system comprises multiple transceivers that transmit a query signal to mobile transponder devices included in handheld personal computing devices.   When the transponder responds with an identification sequence, its location is then computed through so-called chronometric triangulation techniques that are based upon transponder signal arrival times at the system receivers.

The gist of Hollenberg's disclosure is perhaps best appreciated from its Fig. 1 and the related discussion. Specifically, Fig. 1 shows a "situation information system" that is employed in a shopping area. The system includes various rf antennas 14a, 14b, and 14c, the locations of which are known, and which generally transmit and receive information from mobile computers 18a, 18b, and 18c. The situation information system is disclosed to provide services from a service provider that includes finding the locations of the mobile computers and receiving information requests.   The situation information system includes a control system 36a that is connected to each antenna by way of transceiver-A 32a, transceiver-B 32b, and transceiver-C 32c, respectively. Control system 36a is connected to data and memory components 38a and 39a, respectively, and to other systems.

Hollenberg's service provider includes transceivers 32a, 32b, and 32c, antennas 14a, 14b, and 14c, GPS receiver 34a, GPS antenna 21a, control system 36a, network 30a, data 38a, memory 39a, and communications network 31a.

Hollenberg's situation information system is disclosed to operate in two modes—a location finding mode and a situation information service mode. Hollenberg's location finding mode is perhaps more germane to the subject matter

claimed in the present application. Hence, understanding the nuances of how this particular mode works can facilitate an appreciation for the patentable distinctions embodied in the various embodiments that are claimed in the present application.

Exploring the location finding mode in more detail, Hollenberg instructs, in column 12 starting at line 41, that the location finding function utilizes transceivers 32a, 32b, and 32c (Fig. 1) which are time-calibrated and synchronized by means of precise timing signals introduced to control system 36a, such as from satellite 20a. One of transceivers 32a, 32b, or 32c periodically transmits a gating pulse, via antennas 14a, 14b, and 14c, respectively, to a transponder (not shown) located in each of situation information devices 18a, 18b, and 18c. Each of the transponders subsequently responds to the received gating pulse by transmitting an rf signal such that the differences in arrival times of the transmitted signals at each of the antenna/transceiver pairs are used to compute the intersections of each envelope of distance of each of the transponder containing devices from each of the antennas and hence, the location of each of the devices.

Accompanying each of the transponder signals is an identification code which uniquely identifies its device by means of which the location of each user is determined and identified by the situation information service provider. The user's location coordinates are then transmitted to the user's device for incorporation into display-program variables (not shown) and presented appropriately on a display such as the one shown at 4a in Fig. 2.

The Claims

The subject matter recited in each of the claims discussed below is patentably distinct from Hollenberg, as will become apparent.

Claim 1 has been amended and recites a computing device comprising [amended language appears in bold italics]:

- one or more processors;
- memory operably associated with the one or more processors; and
- a context service module loadable in the memory and executable by the one or more processors to receive context information from one or more context providers and process the information to determine a current device context *by determining, from the context information, at least one node associated with the context information and traversing at least a portion of a hierarchical tree structure of which said at least one node comprises a part.*

In making out various claim rejections in the present Office Action, the Office argues that Hollenberg discloses a *hierarchical tree structure* such as those that are contemplated in Applicant's disclosure. For example, the Office contends that such is disclosed in column 8, lines 34-60, column 12, lines 13-40, and column 21, lines 32-54 and, in addition, in Figs. 2, 4, and 11. Applicant has studied Hollenberg in great detail and respectfully disagrees with the Office.

As an example, consider the text appearing in column 8, lines 34-60, the entirety of which is provided below for the Office's convenience:

> In yet another embodiment of subject invention is a distributed system of information service providers which provide data about geographical features, services, and attractions in their local area and transmit that data to mobile devices for display. Data such as mileage to various municipalities, services, and attractions using a location-specific information sequence for fast transmission to mobile devices which display the mapped information, compute distances from the mobile device's current position, etc. Each feature is identified by a code or byte sequence containing fields for the name, global location, and if applicable, Universal Resource Locator (URL), as well as variables for formatting and graphical symbol to be displayed or otherwise executed, aurally, for example. In operating such a system, users of mobile devices with narrow bandwidth,

i.e., slow communications devices, could receive the important subset of mapping elements for a given area quickly. For example, they could receive elements such as main roads and cities and the separation, i.e., mileages and transit time, between them with which their mobile device could compute their mileage and the estimated time before arriving. Also, the mobile device itself could store standard graphical symbols for even more rapid display of such map features in the locations specified by the downloaded mapping information. Devices could then download additional information, including detailed maps, from the information provider should that be required.

The figures cited by the Office simply show a computing device that can be carried by a user. Such does not disclose or suggest a hierarchical tree structure such as that which is recited in the present claim.

Nowhere does the above-excerpted text or figures disclose or in any way imply a hierarchical tree structure as recited in the present claim. Specifically, claim 1 now recites that the context service module determines a current device context *by determining, from the context information, at least one node associated with the context information and traversing at least a portion of a hierarchical tree structure of which said at least one node comprises a part.*

Hollenberg simply neither discloses nor suggests any such computing device. Accordingly, for at least this reason, this claim is allowable.

Claims 2-12 depend from claim 1 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 1, are neither disclosed nor suggested in the references of record, either singly or in combination with one another. In addition, given the allowability of these claims, the rejection of claim 11 over the combination with Reed is not seen to add anything of significance.

Claim 13 has been amended and recites a computing device comprising [amended language appears in bold italics]:

- one or more processors;
- memory operably associated with the one or more processors; and
- a location service module loadable in the memory and executable by the one or more processors to receive location information from one or more location providers and process the information to determine a current device location *by determining, from the location information, at least one node associated with the location information and traversing at least a portion of a hierarchical tree structure of which said at least one node comprises a part.*

As noted above, Hollenberg neither discloses nor suggests any such hierarchical tree structure as contemplated in Applicant's disclosure and recited in this claim. Accordingly, for at least this reason, this claim is allowable.

Claims 14-22 depend from claim 13 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 13, are neither disclosed nor suggested in the references of record, either singly or in combination with one another. In addition, given the allowability of these claims, the rejection of claim 21 over the combination with Reed is not seen to add anything of significance.

Claim 23 recites a computing device comprising:

- one or more processors;
- one or more computer-readable media;
- *at least one hierarchical tree structure resident on the media and comprising multiple nodes each of which represents a geographical division of the Earth*; and
- a location service module loadable in the memory and executable by the one or more pr cessors to receive location information from one or more location providers and *process the information to determine*

a current device location that comprises a node of the hierarchical tree structure.

As noted above, Hollenberg neither discloses nor suggests any hierarchical tree structure as contemplated in Applicant's disclosure and recited in this claim. Accordingly, for at least this reason, this claim is allowable.

Claims 24-31 depend from claim 23 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 23, are neither disclosed nor suggested in the references of record, either singly or in combination with one another.

Claim 32 recites a computing device comprising:

- one or more processors;
- one or more computer-readable media;
- *at least one hierarchical tree structure resident on the media and comprising multiple nodes each of which represents a physical or logical entity*; and
- a location service module loadable in the memory and executable by the one or more processors to receive location information from one or more location providers and process the information to determine a current device location that comprises a node of the hierarchical tree structure.

As noted above, Hollenberg simply does not disclose or suggest a hierarchical tree structure as contemplated in Applicant's disclosure and specifically recited in this claim. Accordingly, for at least this reason, this claim is allowable.

Claims 33-36 depend from claim 32 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited

features which, in combination with those recited in claim 32, are neither disclosed nor suggested in the references of record, either singly or in combination with one another.

Claim 37 has been amended and recites a location-aware computing system comprising [amended language appears in bold italics]:

- one or more computing devices;
- each computing device having a software architecture comprising:
- a location provider interface that is configured to receive location information;
- a location service module communicatively associated with the location provider interface and configured to receive the location information from the multiple different location providers and process the information to ascertain a current device location *by determining, from the location information, at least one node associated with the location information and traversing at least a portion of a hierarchical tree structure of which said at least one node comprises a part*; and
- one or more application program interfaces (API) or events associated with the location service module and defining a mechanism through which information concerning a current device location can be provided to one or more applications that are configured to provide location-specific services.

Hollenberg neither discloses nor suggests a computing system that comprises a location service module communicatively associated with a location provider interface and configured to receive location information from the multiple different location providers and process the information to ascertain a current device location *by determining, from the location information, at least one node associated with the location information and traversing at least a portion of a hierarchical tree structure of which said at least one node comprises a part*. Given the allowability of this claim, the rejection over the combination

with Reed is not seen to add anything of significance. Accordingly, for at least this reason, this claim is allowable.

Claims 38-44 depend from claim 37 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 37, are neither disclosed nor suggested in the references of record, either singly or in combination with one another.

Claim 45 has been amended and recites a computer-implemented method of determining a computing device context comprising [amended language appears in bold italics]:

- receiving, with a computing device, information that pertains to a current context of the device;
- processing the information on and with the device to ascertain the current context of the computing device *by determining, from the information, at least one node associated with the information and traversing at least a portion of a hierarchical tree structure of which said at least one node comprises a part.*

Hollenberg neither discloses nor suggests any such method in which a current context of a computing device is ascertained *by determining, from the* [recited] *information, at least one node associated with the information and traversing at least a portion of a hierarchical tree structure of which said at least one node comprises a part.* Accordingly, for at least this reason, this claim is allowable.

Claims 46-57 depend from claim 45 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 45, are neither disclosed

nor suggested in the references of record, either singly or in combination with one another.

Claim 58 has had a minor cosmetic amendment to change the word "of" to "or" in the preamble. Claim 58 recites one or more computer-readable media having computer-readable instructions thereon which, when executed by a computing device, cause the computing device to:

- receive information that pertains to a current location of the device, the information being received from multiple different location providers; and
- process the information to *map the information to a node of a hierarchical tree structure that comprises multiple nodes that represent either (1) geographical divisions of the Earth or (2) physical or logical entities;* and
- *traverse the hierarchical tree structure to ascertain the current device location.*

Hollenberg neither discloses nor suggests any such subject matter. Accordingly, for at least this reason, this claim is allowable.

Claim 59 recites a computer-implemented method of determining the location of a hand-held, mobile computing device comprising:

- *maintaining a hierarchical tree structure* on the mobile computing device, the tree structure comprising multiple nodes each of which represent geographical divisions of the Earth;
- receiving information from multiple different location providers that describe aspects of a current device location;
- processing the information with the mobile device to ascertain a node on the tree structure that likely constitutes a current device location; and
- traversing at least one other node of the tree structure to ascertain additional location information that is associated with the current device location.

Hollenberg neither discloses nor suggests a method that utilizes a hierarchical tree structure as contemplated in Applicant's disclosure and specifically recited in this claim. Accordingly, for at least this reason, this claim is allowable.

Claims 60-66 depend from claim 59 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 59, are neither disclosed nor suggested in the references of record, either singly or in combination with one another. In addition, given the allowability of this claim, the rejection of claim 63 over the combination with Reed is not seen to add anything of significance.

Claim 67 recites one or more computer-readable media having computer-readable instructions thereon which, when executed by a computing device, cause the computing device to:

- *maintain or access a hierarchical tree structure on or with the computing device,* the tree structure comprising multiple nodes each of which represent geographical divisions of the Earth;
- receive information from multiple different location providers that describe aspects of a current device location;
- process the information with the device to ascertain a node on the tree structure that likely constitutes a current device location;
- traverse at least one other node of the tree structure to ascertain additional location information that is associated with the current device location;
- receive one or more calls from one or more applications for information that pertains to a current device location, the applications being configured to render location-specific information; and
- supply at least some information that pertains to the current device location to the one or more applications.

Hollenberg neither discloses nor suggests a system that utilizes a hierarchical tree structure as contemplated in Applicant's disclosure and specifically recited in this claim. Accordingly, for at least this reason, this claim is allowable.

Conclusion

All of the claims are in condition for allowance. Accordingly, Applicant requests a Notice of Allowability be issued forthwith. If the Office's next anticipated action is to be anything other than issuance of a Notice of Allowability, Applicant respectfully requests a telephone call for the purpose of scheduling an interview.

Amended Claims with Markups to Sh ws Amendments

1.　(Amended) A computing device comprising:

one or more processors;

memory operably associated with the one or more processors; and

a context service module loadable in the memory and executable by the one or more processors to receive context information from one or more context providers and process the information to determine a current device context <u>by determining, from the context information, at least one node associated with the context information and traversing at least a portion of a hierarchical tree structure of which said at least one node comprises a part.</u>

13.　(Amended) A computing device comprising:

one or more processors;

memory operably associated with the one or more processors; and

a location service module loadable in the memory and executable by the one or more processors to receive location information from one or more location providers and process the information to determine a current device location <u>by determining, from the location information, at least one node associated with the location information and traversing at least a portion of a hierarchical tree structure of which said at least one node comprises a part.</u>

37.　(Amended) A location-aware computing system comprising:

one or more computing devices;

each computing device having a software architecture comprising:

a location provider interface that is configured to receive location information;

a location service module communicatively associated with the location provider interface and configured to receive the location information from the multiple different location providers and process the information to ascertain a current device location by determining, from the location information, at least one node associated with the location information and traversing at least a portion of a hierarchical tree structure of which said at least one node comprises a part; and

one or more application program interfaces (API) or events associated with the location service module and defining a mechanism through which information concerning a current device location can be provided to one or more applications that are configured to provide location-specific services.

45.   (Amended) A computer-implemented method of determining a computing device context comprising:

receiving, with a computing device, information that pertains to a current context of the device;

processing the information on and with the device to ascertain the current context of the computing device by determining, from the information, at least one node associated with the information and traversing at least a portion of a hierarchical tree structure of which said at least one node comprises a part.

58.   (Amended) One [of] or more computer-readable media having computer-readable instructions thereon which, when executed by a computing device, cause the computing device to:
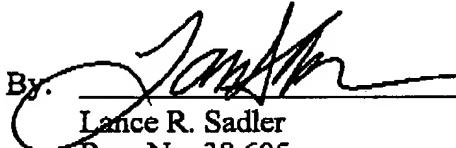
receive information that pertains to a current location of the device, the information being received from multiple different location providers; and

process the information to map the information to a node of a hierarchical tree structure that comprises multiple nodes that represent either (1) geographical divisions of the Earth or (2) physical or logical entities; and

traverse the hierarchical tree structure to ascertain the current device location.

Respectfully Submitted,

Dated: __6/24/03__   By: _____
                                 Lance R. Sadler
                                 Reg. No. 38,605
                                 (509) 324-9256